PROMOTING THE DEVELOPMENT OF EDUCATIONAL PROGRAMS FOR CHILDREN WITH AUTISM IN SOUTHEAST ASIAN COUNTRIES

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Children with autism generally face significant challenges in such areas as normal social interaction, communication, and independent daily functioning, which are considered as the basic skills essential for success in life. The purpose of this paper is to synthesize the established research and best practices in enhancing the above skills for children with Autism in the United States, with an attempt to promote the development of educational programs for children with autism in Southeast Asian countries. The first part of this paper introduces several research-based educational approaches and best practices in the field, including structured teaching approaches, direct instruction, social stories, peer-mediated intervention, video modeling, and discrete trial instruction, which have been proven effective in teaching social skills and in improving communication ability, as well as in decreasing inappropriate behavior in children with autism.The latter part of this paper suggests how these educational programs can be introduced to Southeast Asian countries based on the actual situations over there, to promote the development of educational programs for children with Autism in those areas.

Children with autism generally face significant challenges in such areas as normal social interaction, communication, and independent daily functioning, which are considered as the basic skills essential for success in life. The diagnostic label of autism should not be the end of the multidisciplinary assessment process. Having more up-to-date knowledge of this population including their characteristics, strengths, needs and interests is more important than simply a diagnosis (Kunce & Mesibov, 1998). Only with a better understanding of these individuals can researchers develop effective individualized educational programs for them. This process requires on-going joint efforts of researchers from multiple disciplines. The following section is the introduction of several evidence-based, effective educational programs that are widely used by educators or professionals as best practices in the United States, including structured teaching approaches, direct instruction, social stories, peer-mediated intervention, video modeling, and discrete trial instruction.

Effective Educational Programs for Children with Autism

Structured Teaching Approaches

Originally developed by researchers from the TEACCH (Treatment and Education of Autistic & related Communication handicapped Children) program at the University of North Carolina, Chapel Hill, structured teaching approaches are regarded as the most effective individualized teaching approaches implemented in classroom settings for students with autism, especially for high-functioning autism. They include such components as routines, schedules, adapted instructional strategies, and modification of learning environments (Kunce & Mesibov, 1998).

Routines & Schedules

As visual learners, individuals with autism tend to think in pictures and are unable to follow verbal instruction. Their insistence on sameness creates a great challenge for caregivers, parents and educators. Even for students with HFA, they still fail to adapt well in unmodified classroom because of their pragmatic impairments (Kunce & Mesibov, 1998). The use of routines and schedules can help students with this disorder better adapt to classroom environments by establishing consistency and predictability (Kunce & Mesibov, 1998). Researchers found the use of systematic routines lessens the feeling of anxious, decreases behavior problems and decreases transitional difficulty, as well as promotes learning in students with HFA (Mesibov, Scholper, & Hearsey, 1994).

For students with moderate to severe autism, particularly for those who fail to develop verbal language, visual schedules (e.g., picture exchange communication system, or PECS; Bondy & Frost, 1994) play an irreplaceably essential role in their life in that visual schedules enable them to communicate with others more effectively, to make preferred choice easily, and to perform tasks and activities

independently, as well as to initiate more meaningful social interaction (McClannahan & Krantz, 1999).

Adapted Instructional Strategies

Most students with autism fail to benefit from traditional teaching methods. To help them better understand classroom instruction and requirements, Kunce and Mesibov (1998) suggested teachers apply the following adapted instructional strategies:

(1) *Adjusting instructional language*. Simple short sentences with slower speed can help clarify instruction and expectation to individuals with autism (Kunce & Mesibov, 1998).

(2) *Using written information.* Based on their relative strengths in visual spatial processing, visual stimuli (i.e., written task directions, written cues, maps, pictures, handouts and checklists) are more effective than instructional languages and other presentation styles (Kunce & Mesibov, 1998, p. 239)

(3) *Taking advantage of the target student's special interests.* Students with HFA and Asperger syndrome usually have strong interests in some special objects or topics. Researchers emphasized it is important to utilize their special interests to develop academic and career skills, or to serve as reinforcement, rather than stamping them out (Siegel, Goldstein, & Minshew, 1996, p. 244).

Modification of Learning Environments

Besides the adapted instructional strategies, environmental modification is also essential (Kunce & Mesibov, 1998). Typically, students with autism learn better in a structured environment. Whenever possible, arrange the learning materials and furniture in ways that accommodate the students' learning styles best to reduce potential distractions (Kunce & Mesibov, 1998), such as offering preferential seating and providing an independent work area. The use of organizational work system, such as using containers with written labels to organize tasks, is another simple but most effective way to modify learning environments for students with autism (Dalrymple, 1995; Kunce & Mesibov, 1998).

Direct Instruction

Over years, Direct Instruction (DI) has been considered as one of the most effective pedagogical techniques to produce academic growth and *one of the most thoroughly research-based and research-validated systems in education* (Slocum, 2004, p. 91). The term *Direct Instruction* refers to an intensive teaching method that is systematically developed, highly scripted, fast-paced and characterized by constant student-teacher interaction (Slocum, 2004). It was developed by Siegfried Englemann, a professor at the University of Oregon, in the 1960s and introduced to schools ever since then.

Direct Instruction programs have been proven effective empirically by a large body of literature, of which Project Follow Through is the biggest educational study has ever conducted in the history of the United States (Adams & Englemann, 1996). This 8-year (1968-1976) project covered more than 10,000 children in 180 communities across the country and cost over $500 million (Adams & Engelmann, 1996). It examined the effects of nine educational approaches to learning on the academic performance of disadvantaged students in the 3rd grade. Outcomes measured included basic skills, cognitive skills and affective outcomes. Overall, the results of this project showed that of 9 approaches, only DI had consistently positive effects on three kinds of outcomes mentioned above (for a review, please see Slocum, 2004). In addition to Project Follow Through, other researchers have also illustrated the effectiveness of DI through meta-analysis studies (Adams & Engelmann, 1996; Borman, Hewes, Overman, & Brown, 2002; Slocum, 2004). Data from the American Institutes for Research (AIR) also revealed DI is one of only three models that have positive impacts on the students' academic performance (Herman, Aladjem, McMahon, Masem, Mulligan, O'Malley, & et al., 1999).

The deciding factor for implementation of Direct Instruction (DI) is that teachers should know exactly how to use DI to teach children with autism. Thus, it is essential to provide extensive preservice or inservice training and coaching programs focusing on learning strategies unique to the implementation of DI, including related learning theories, presentation techniques, classroom management skills, reinforcement principles, error correction procedures and other techniques such as staying with the script and pacing to teachers (Education Commission of the States, 1999; Kozloff, LaNunziata, & Cowardin, 1999). Better training outcomes can be achieved if teachers are given opportunities to practice and receive constructive feedback and support from the coach (Education Commission of the States, 1999).

Social Stories

According to Baron-Cohen, Leslie, and Frith (1985), theory of mind deficits is evident in children with autism. They have difficulty understanding others' thoughts, mental states, desires and intentions, which is believed to be responsible for their poor social communication skills (Baron-Cohen, 2000). Traditional educational approaches fail to insure a meaningful improvement in their social performance. Research indicated the use of social stories is a more effective intervention (Sansosti, Powell-Smith, & Kincaid, 2004).

A social story is a short story that is written from the student's perspective and can be used to help the target student better understand complex and confusing social situations (Gray & Garand, 1993; Gray, 1997). According to Attwood (2000), social stories

> *provide information on what people in a given situation are doing, thinking or feeling, the sequence of events, the identification of significant social cues and their meaning, and the scripts of what to do or say; in other words, the what, when, who and why aspects of social situations* (p. 90).

Generally social stories are written in six basic types of sentences: descriptive, directive, perspective, affirmative, control and cooperative (Gray, 1998, 2000). Gray (1998, 2000) pointed out that these 6 types of sentences should be used at a balanced ratio: usually match 2 to 5 descriptive, perspective (or cooperative), and/or affirmative sentences with 1 directive (or control) sentence in a social story (Gray, 1998, 2000).

Previous research has demonstrated the effectiveness of social stories in teaching children with autism (e.g., Hagiwara & Myles, 1999; Noris & Dattilo, 1999). Social stories can be used to educate individuals with autism across various behavior and settings. Firstly, social stories have been proven effective in decreasing undesirable behaviors (such as disruptive behaviors, Brownell, 2002; Scattone, Wilczynski, Edwards, & Rabian, 2002; and tantrum behavior, Kuttler, Myles, & Carlson, 1998; Lorimer, Simpson, Myles, & Ganz, 2002). Social stories can also increase appropriate or more socially acceptable behaviors in individuals with autism (Crozier & Sileo, 2005; Feinberg, 2001; Romano, 2002). In addition, previous research indicated the most effective and positive intervention outcomes are obtainable only when social stories are combined with other intervention approaches, rather than being used alone (Thiemann & Goldstein, 2001).

Educators or professionals should also take the following related issues into consideration when developing social stories for children with autism: (1) make sure the social stories being written are within the target student's comprehension ability (Crozier & Sileo, 2005; Gray, 1998); (2) incorporate the student's preferences and interests into the writing of social stories (Gray, 1998); use pictures to help the target student understand the social story when appropriate and necessary (Crozier & Sileo, 2005); (3) introduce a social story to the target student in a relaxed, distraction-free environment (Gray, 1998); (4) make ongoing revision to social stories in accordance with the target student's progress (Gray, 1998). Most social stories are developed or written by professionals or parents. Research proposed the following two key ways to implement social stories: (1) read by the target child independently, or by his/her caregiver; (2) presented through another medium, such as audio equipment, computer-based program, or via videotape (Charlop & Milstein, 1989; Sansosti, Powell-Smith, & Kincaid, 2004).

Peer-Mediated Intervention

The effects of peer-medicated interventions (PMI) have been well established in the literature and regarded as one of the most promising approaches to educating individuals with autism (Goldstein, Wickstrom, Hoyson, Jamieson, & Odom, 1988; Ostrosky, Kaiser, & Odom, 1993; Robertson, Green, Alper, Schloss, & Kohler, 2003). Peer-medicated interventions (also refers to as peer tutoring) can be divided in three levels: class wide, small group and one-to-one. Over the past two decades, many researchers devoted tirelessly to the exploration of more effective PMI for individuals with autism and a great volume of such studies can be found in the literature. They demonstrated the effectiveness of various PMI in facilitating both academic growth and positive social interaction between individuals with autism and their typically developing peers (e.g., Kamps, Barbetta, Leonard, & Delquadri, 1994; Goldstein, Kaczmarek, Pennington, & Shafer, 1992; McGee, Almeida, Sulzer-Azaroff, & Feldman, 1992). Researchers have also demonstrated the effectiveness of peer mediation when it is used as a component of an intervention package (Morrison, Kamps, Garcia & Parker, 2001; Thiemann & Goldstein, 2004).

When developing peer-mediated intervention, Ostrosky et al. (1993) suggested the best role for typical peers to play is to be *facilitator* rather than *primary interventionist* (p. 170). That is to say, peer-mediated interventions should be able to provide *appropriate behavioral models* and opportunities for successful communication, to facilitate generalization across different settings and people (Ostrosky et al., 1993, p. 170). They proposed the following criteria for selecting typical peers: (1) they demonstrate age-appropriate language and social skills; (2) they are familiar with the target participants, and interact positively with the target participants in the natural settings; (3) they would like to follow adult direction and are willing to help peers with disabilities (Ostrosky et al., 1993). Effective peer-mediated intervention should be able to maintain the target child's join attention (Ostrosky et al., 1993). To maximize treatment efficacy of PMI, the target child's preference, existing repertoires and strengths should be taken into consideration (Ostrosky et al., 1993). Ostrosky et al. (1993) also suggested multiple exemplars *should be trained to facilitate generalization to untrained stimulus conditions and to untrained response*s (p. 179).

Video Modeling

Research has found that the use of video modeling (including self modeling, peer modeling and adult modeling) can have a great positive impact in the areas of social communication, daily functioning skills, and academic performance on children with various disabilities (e.g., Apple, Billingsley, & Schwartz, 2005; Charlop-Christy & Daneshvar, 2003; Goldstein & Thiemann, 2000; Simpson, Langone, & Ayres, 2004). Video modeling is effective because: (1) it focuses on the target children's visual strengthen (Pierce & Schreilbman, 1994); (2) children with autism prefer to learn from video modeling to live, real world (or in-vivo) peer modeling (Charlop-Christy, Le, & Freeman, 2000). Over years, video modeling has been widely accepted as the best practice in the literature and can be used in many different ways (Sturmey, 2003).

Video modeling can be used to teach social skills (Simpson, Langone, & Ayres, 2004) and activity schedules (Kimball, Kinney, Taylor, & Stromer, 2004), as well as to decrease disruptive behaviors in children with autism (Schreibman, Whalen, & Stahmer, 2000). In addition, video modeling can also be used to teach new daily functioning skills to individuals with autism (Alacantara, 1994; Shipley-Benamou, Lutzker, & Taubman, 2002). Furthermore, video modeling can also be used to improve other behavior or skills (e.g., perspective taking, Charlop-Christy & Daneshvar, 2003) in individuals with autism. Recent studies also suggested video modeling can be an effective strategy when it is implemented as part of an intervention package because it can maximize the intervention efficacy and generalization (i.e., LeBlanc, Coates, Daneshvar, Charlop-Christy, Morris, & Lancaster, 2003). For example, Apple, Billingsley, and Schwartz (2005) conducted a study of two experiments to examine the effects of video modeling alone and with self-management on compliment-giving behaviors of children with HFA. Results indicated application of both video modeling and self-management strategies produce and maintain social initiations when video modeling alone fails.

Discrete Trial Instruction

Discrete Trial Instruction was initially promoted by Lovaas and his colleagues at the University of California, Los Angeles in the 1970s (Lovaas, Schreibman, & Koegel, 1974). Over years, Discrete Trial Instruction (or DTI; Other names include *Discrete Trial Training*, *Discrete Trial Therapy*, or *Discrete Trial Approach*), has become the most widely used ABA technique in teaching children with autism, especially effective in teaching "young children who are receiving intensive early intervention" (Harris & Delmolino, 2002, p. 14).

According to Harris and Delmolino (2002), DTI *is derived from the assumption that behavior is learned and that the science and laws of learning theory can be applied systematically in the education of young children with autism* (p. 14). This intensive technique is usually implemented one-to-one in highly structured home-based (Lovaas, 1987) or centered-based (Harris & Handleman, 2000) environments, in which children with autism are supposed to learn best. The three key components of DTI are antecedent (what happens before the target behavior, here it may be the instruction, the command or the cue presented to the child. In DTI, it is also called discriminative stimulus—S^D), target behavior (the child's response) and consequence (what comes after the behavior, may be either reinforcement or punishment). Each trial consists of these three components in sequence: discriminative stimulus-behavior-consequence.

For decades, DTI has been regarded as the most important and effective behavioral method in teaching children with autism. Studies have documented that DTI is especially helpful in teaching new skills and is the best in teaching speech and language (Goldstein, 2002; Young, Krantz, McClannahan, & Poulson, 1994). Research also indicated DTI is effective in promoting social communication in children with autism (Krantz & McClannahan, 1981; Mundy & Crowson, 1997). In addition, DTI also demonstrated its effectiveness in managing disruptive behavior (Carr & Durand, 1985; Koegel, Koegel, & Dunlap, 1996). Furthermore, DTI can also be used to improve play skills (Stahmer, Ingersoll, & Carter, 2003) and complex daily living skills (Smith, 2001) in children with autism.

As demonstrated in the literature, implementation of DTI involves the use of many essential knowledge from both learning and behavioral theories, for example, imitation, prompting and cues, fading, shaping, and reinforcement, etc (Ogletree & Oren, 2001). Usually teachers need to receive professional training before they are able to implement such instruction. Although what should be taught in such trainings has not been identified in the literature to date, trainings in the following areas are essential: (1) autism spectrum disorders, including issues concerning the diagnostic criteria, prevalence, etiology, and major characteristics, relative strengths and specific needs as well as other related issues; (2) behavioral science, consisting of classic and operant conditioning, ABA principles and related behavioral management skills and/or behavior modification procedures; and (3) other related learning theories and knowledge of psychology, including social learning theory, developmental psychology, and cognitive science.

Despite a void in training contents, a behavioral skills training package for teachers consisting of instruction, feedback, rehearsal, and modeling has been proven effective in improving the target students' behavior (Keogel, Russo, & Rincover, 1977; Sarokoff & Sturmey, 2004). Researchers have reported that desired long-term treatment effectiveness can be achieved when DTI is implemented intensively (40 hours per week) for a long time (two years or more) (Smith, 2001). In addition, when implementing DTI procedures, two things need to be targeted: (a) maintenance of the student's joint attention; and (b) how to maximize the target student's ability to generalize the learned skills in more naturalistic environments? One way to achieve the above goals is to integrate DTI into a comprehensive intervention package rather than being used as the only instructional strategy for children with autism (Simpson, 2001). In addition, other researchers have indicated active parental involvement can result in more positive outcomes in generalization (Harris & Handleman, 2000).

Issues related to the Introduction of Educational Programs to Southeast Asian Countries

In the past, people believed children with moderate to severe disabilities were not teachable. Today, we all know that belief is not real. In reality, thousands of life stories have demonstrated that if given opportunities to learn, what remarkable outcomes these children are able to achieve! Marc Gold was one of the proponents who tirelessly advocated that people with developmental disabilities (e.g., autism) should be provided meaningful opportunities for learning. He once stated, *a lack of learning in any particular situation should first be interpreted as a result of the inappropriate or insufficient use of teaching strategy rather than an inability on the part of the learner* (Gold, 1980, p. 15). The educational programs we introduced in the previous section of this paper have been regarded as most effective educational programs and best practices in teaching children with autism in the United States. We firmly believe those educational programs will be of great benefit to children with autism in Southeast Asian countries, too. This section is going to address several important issues related to the introduction of these educational programs to Southeast Asian countries.

Triangulation of Policy, Research, & Practice

It is noted that the above interventions will never become best practice if they are not research valid. Related research will not be conducted if no relevant policy supports. Policy is made based on research and also promotes the development of research. Research guides and improves practice while practice also inspires research and policy. No change in policy will be made if practice and research do not urge it to do so. Thus, the ideal relationship between policy, research and practice should be: they dynamically triangulate with one another (Please refer to figure 1). However, in reality, policy, research and practice are not always connected to each other all the time. Sometimes, breakdowns happen between them.

For example, the passage of the Individuals with Disabilities Education Act (IDEA, 1990, as Public Law 101-476), an important part of special education reform in the United States, can be regarded as a

result of change in people's attitude towards education and treatment of people with disabilities (practice urged change in policy). The passage of IDEA also promotes the further development of related research concerning effective teaching strategies and best treatment practices (In return, policy supports research; change in policy results in further development of related research and practice). Several years later, as more and more positive research–valid interventions merge in the literature, people no longer satisfied with traditional treatments for children with severe disabilities, the reauthorization of IDEA in 1997 (Public Law 105-117) advocates the use of positive behavior interventions as treatments for these children (Further development of related research again urges change in policy; while change in policy and research also promote the further development of educational practice).

Likewise, if environments and policy are not supportive, it is unlikely for professionals to make any differences in lives of individuals with disabilities in any place of the world. Thus triangulation of policy, research and practice is the basis that successful implementation of interventions rests on. However, to promote the development of intervention for children with autism in Southeast Asian countries, another essential issue is the availability of qualified human resources.

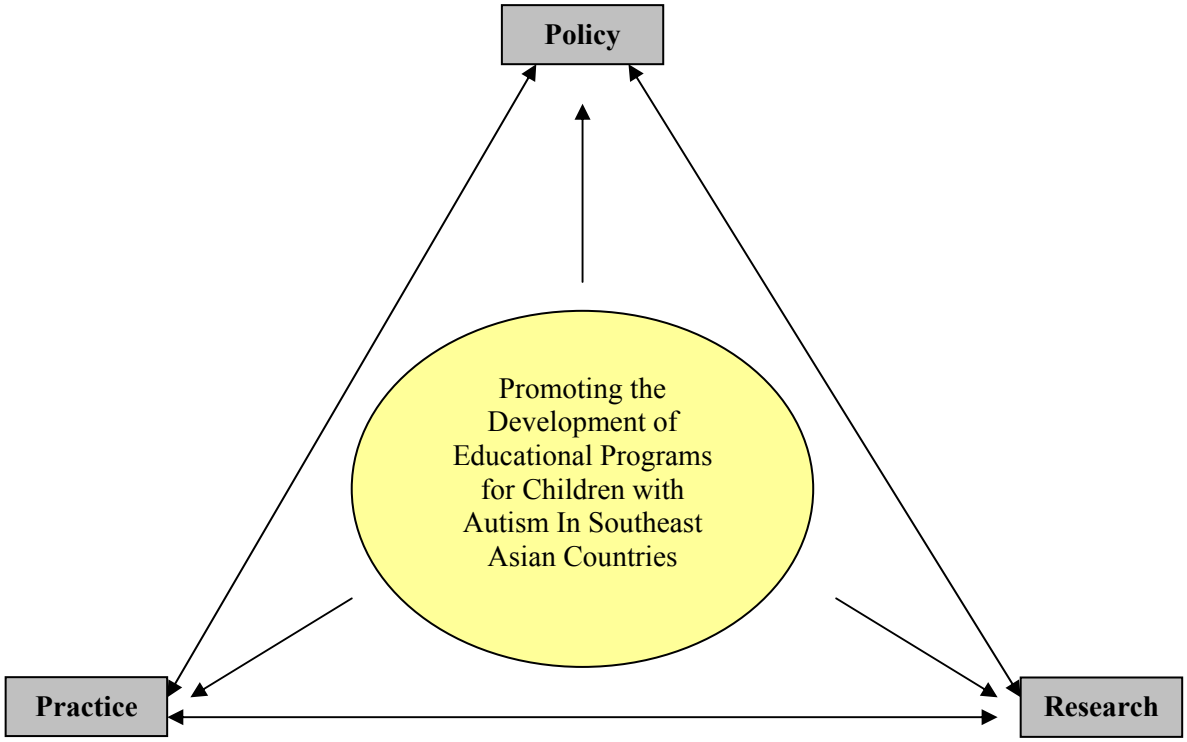

Figure. 1
The Ideal Model of Dynamic Triangulation of Policy, Research and Practice

Investment in Human Capital

Unfortunately, demands for competent professionals in this field are far outnumber supplies in the current market worldwide. Thus, investment in human capital has become the most urgent need throughout the world. To increase the number of competent professionals in the near future, Southeast Asian countries can:

(1) Add some new courses on Autism Spectrum Disorders to the current curriculum of special education programs in colleges and universities, to provide more up-to-date knowledge and information of latest research and best practices worldwide in this field;

(2) Establish some specialized graduate programs focused on learning theories (i.e., social learning theory, developmental psychology, & cognitive psychology) and behavioral intervention techniques (e.g., Applied Behavior Analysis & Positive Behavior Support) in some major universities that possess excellent educational facilities and highly qualified human resources. For example, establish graduate programs in Applied Behavior Analysis at major universities to train more qualified behavioral analysts (leading to certification by BACB®) to better serve children with various special needs, including autism.

(3) Provide intensive in-service training in the areas of Autism Spectrum Disorders, related learning theories, behavioral assessment skills and behavior modification strategies to special educators who work with children with autism.

Most Southeast Asian countries experienced rapid economic growth in the past few decades, which makes economic investment in education of children with disabilities possible. Based on human capital theory, returns to public investment in education in the world have proven that human capital investment in education is highly profitable. From the social point of view, it promotes not only the development of education nationwide, but also economic growths across countries worldwide (Psacharopoulos, 1994). From the private point of view, investment in education increases individual earnings as well (Blundell, Dearden, Meghir, & Sianesi, 1999). Accordingly, more investment in human capital in special education in Southeast Asian countries today will definitely gain incredible returns in this field in the near future.

Family-Professional Collaboration

Parents play the key role in their children's development and education. According to Turnbull and Turnbull (2001), family-professional collaboration refers to "the dynamic process of families and professionals equally sharing their resources (that is, motivation and knowledge/skills), in order to make decisions jointly" (p. 13). Unlike parents' roles in the past, this role indicates that families will share an equal and full partnership with professionals and schools, and this relationship is mutual beneficial. The best educational outcomes for target students result from the joint efforts made by all relevant stakeholders, including *families, target students, classmates, teachers, administrators, paraprofessionals and other related service providers* (Turnbull & Turnbull, 2001, p. 13). This relationship better serves the children with special needs in terms of the following two aspects: firstly, it will provide the student with improved educational outcomes resulting from the multiple perspectives and resources (i.e., motivation and knowledge/skills) of collaborators. Secondly, it will enrich the collaborators' resources by *learning from each other* and through mutual supports (Turnbull & Turnbull, 2001, p. 13).

Trust and *respect* are the most essential elements for barrier-free partnerships in working with families. With a trusting and respectful relationship, professionals can enhance collaboration and empowerment in families (Wheeler & Richey, 2005); families are willing to provide accurate and adequate information about their children and cooperate with professional recommendations, and may be able to achieve incredible educational outcomes (Turnbull & Turnbull, 2001). Without trust and respect, professionals will not be able to identify families' strengths and needs. Thus, barrier-free partnerships are mutual beneficial for both professionals and families (Wheeler & Richey, 2005).

Early Identification and Early Intervention

Intensive early intervention is essential and can maximize the positive outcomes for children with autism because research has showed evidence that the earlier they receive intervention, the better outcomes they will have (Woods & Wetherby, 2003). Some researchers pointed out that intervention outcomes are predictable based on the age the child receives intervention. They reported children who started intensive intervention by age three have a significantly better outcome than those who received treatment after age five (Fenske, Zalenski, Krantz, & McClannahan, 1985; Harris & Handleman, 2000). Other researchers also found that intensive intervention before age three demonstrated the best outcomes (McGee, Morrier, & Daly, 1999). The most commonly used outcome measures for children with autism are: (1) change in IQ; and (2) change in postintervention placement, representing the overall growth and development of the child (NRC, 2001).

Early intervention is family-centered; so family members should be collaborative partners for educators and professionals. They are also one important factor that affects their children's early diagnosis of autism in the United States. Other factors include pediatricians' and other professionals' lack of appropriate knowledge and training to identify early signs of ASD, and an absence of effective developmental screenings. Thus, to promote establishment and development of early identification and early intervention in Southeast Asian countries, the following areas should be particularly focused on: (a) family-professional collaboration; (b) routine developmental screening; (c) special training to professionals in how to identify early signs of ASD; and (d) comprehensive, multidiscipline assessments for diagnosis of ASD.

Other Related Concerns

In addition to the above important issues, other related concerns such as cooperation with Western countries (e.g., learn from their successful experiences, ask for technical assistance and supports, and establish cooperative training programs) and the implementation of multiple interventions are also essential for the development of educational programs for children with autism in Southeast Asian countries. For example, to develop professional training programs in Direct Instruction (DI) in these countries, two recommendations are given: (1) cooperating with some American universities (e.g., University of Oregon) who have excellent programs in DI, or (2) consulting some non-profit DI program providers (i.e., the Association for Direct Instruction, & the National Institute of Direct Instruction) in the United States for technical assistance and training. Southeast Asian countries are encouraged to learn from those successful Direct Instruction programs and develop independent curriculum for children with autism according to the actual situations of their own countries.

With regard to implementation of multiple interventions, research has indicated when teaching children with autism, multi-component intervention package can achieve more effective outcomes because each intervention strategy has its limitation, while combination of two or more intervention strategies can maximize treatment efficiency and strengthen the student's generalization ability (LeBlanc et al., 2003; Morrison, Kamps, Garcia, & Parker, 2001; Thiemann & Goldstein, 2001; Thiemann & Goldstein, 2004).

Conclusion

Autism is a complex, behavior-defined developmental disorder. All children with autism share many similar characteristics, no matter which country they are from. The educational programs introduced previously have been proven effective in teaching children with autism in the United States for years. We believe children with autism in Southeast Asian countries can also benefit from them, too. However, it is noted every child is unique and has his/her own strengths and needs. One child may find one of the above interventions especially beneficial while another child may experience no positive behavioral change at all by using the same intervention. So it is impossible that one intervention is equally effective for all children, nor can all children gain the same degree benefit from these interventions, either.

Southeast Asian countries are encouraged to learn from the United States on how to implement the above interventions. However, please note that it is impossible for one size to fit all. Each culture has its own definitions of what behaviors are socially appropriate and what are not. So we need to be well aware that cultural differences may affect the implementation of the above educational programs in their countries, thus they are recommended to avoid copying everything from the United States. When implementing such interventions, educators/professionals in Southeast Asian countries need to be realistic and make appropriate modification when necessary. For example, individualize and customize interventions to meet each child's special needs, based on the actual situation and resources available in these countries. Meaningful intervention outcomes are obtainable only when interventions are built on the student's strengths and interests.

The ultimate goal of different educational programs is the same: to enhance quality of life for children with autism. Like all typically developing children, children with autism also desire better education and higher quality of life, no matter where they are living. The United States has already made a good beginning in this field and has set a great example for the rest of the world. However, nothing is perfect. All educational programs introduced previously in this paper have their limitations. Thus more explorations need to be made to better serve children with this disorder. But the first steps are the most important because they imply that significant social changes are under way! Through introducing those established research and best practice in the United States, the author intends to confirm the belief that children with autism are teachable and they deserve more social attention worldwide, with an attempt to promote the development of educational programs for children with autism in Southeast Asian countries.

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